CLAIMS

1. A survey device for determining an elevation of a subterranean architectural feature, the survey device comprising:

a first sensor operable to generate a first signal indicative of a line-of-sight distance from the survey device to the subterranean architectural feature,

a second sensor operable to generate a second signal indicative of an angular position of the survey device relative to a vertical reference, and

a processor electrically coupled to both the first sensor and the second sensor.

2. The survey device of claim 1, further comprising a housing, the first sensor, the second sensor, and the processor being positioned in the housing.

3. The survey device of claim 2, further comprising a support frame, the housing being secured to the support frame.

4. The survey device of claim 1, further comprising a memory device electrically coupled to the processor, the memory device having stored therein a plurality of instructions which, when executed by the processor, cause the processor to calculate the elevation of the subterranean architectural feature based on the first signal and the second signal.

5. The survey device of claim 1, further comprising a display device electrically coupled to the processor.

6. The survey device of claim 1, further comprising a keypad electrically coupled to the processor.

7. A method of operating a survey instrument to determine an elevation of a subterranean architectural feature, the method comprising the steps of:

determining a line-of-sight distance from the survey instrument to the subterranean architectural feature and generating a first signal in response thereto,

determining an angular position of the survey instrument relative to a vertical reference and generating a second signal in response thereto, and

calculating the elevation of the subterranean architectural feature in response to generation of the first signal and the second signal.

8. The method of claim 7, wherein the line-of-sight determining step comprises operating a distance sensor so as to determine the line-of-sight distance from the survey instrument to the subterranean architectural feature.

9. The method of claim 7, wherein the angular position determining step comprises operating an angle sensor so as to determine the angular position of the survey instrument relative to the vertical reference.

10. The method of claim 7, further comprising the step of displaying the elevation on a display device subsequent to the calculating step.

11. A survey instrument, comprising:

a distance sensor,

an angle sensor,

a processor electrically coupled to the distance sensor and the angle sensor, and

a memory device electrically coupled to the processor, the memory device having stored therein a plurality of instructions which, when executed by the processor, cause the processor to:

operate the distance sensor to determine a line-of-sight distance from the survey instrument to a subterranean architectural feature and generate a first signal in response thereto,

operate the angle sensor to determine an angular position of the survey instrument relative to a vertical reference and generate a second signal in response thereto, and

calculate the elevation of the subterranean architectural feature in response to generation of the first signal and the second signal.

12. The survey instrument of claim 11, further comprising a display device, wherein the plurality of instructions, when executed by the processor, further cause the processor to operate the display device to display the elevation thereon.

13. The survey device of claim 11, further comprising a housing, the distance sensor, the angle sensor, and the processor being positioned in the housing.

14. The survey device of claim 13, further comprising a support frame, the housing being secured to the support frame.

15. A method of operating a survey instrument to determine an elevation of a subterranean architectural feature, the method comprising the steps of:

determining a line-of-sight distance from the survey instrument to the subterranean architectural feature and generating a first signal in response thereto,

determining an angular position of the survey instrument relative to a vertical reference and generating a second signal in response thereto, and

displaying the elevation of the subterranean architectural feature on a display device in response to generation of the first signal and the second signal.

16. The method of claim 15, wherein the line-of-sight determining step comprises operating a distance sensor so as to determine the line-of-sight distance from the survey instrument to the subterranean architectural feature.

17. The method of claim 15, wherein the angular position determining step comprises operating an angle sensor so as to determine the angular position of the survey instrument relative to the vertical reference.

18. The method of claim 15, further comprising the step of calculating the elevation prior to the displaying step.

19. A survey instrument, comprising:

a distance sensor,

an angle sensor,

a display device,

a processor electrically coupled to each of the distance sensor, the angle sensor, and the display device, and

a memory device electrically coupled to the processor, the memory device having stored therein a plurality of instructions which, when executed by the processor, cause the processor to:

operate the distance sensor to determine a line-of-sight distance from the survey instrument to a subterranean architectural feature and generate a first signal in response thereto,

operate the angle sensor to determine an angular position of the survey instrument relative to a vertical reference and generate a second signal in response thereto, and

display the elevation of the subterranean architectural feature on the display device in response to generation of the first signal and the second signal.

20. The survey instrument of claim 19, wherein the plurality of instructions, when executed by the processor, further cause the processor to calculate the elevation prior to display thereof on the display device.

21. The survey device of claim 19, further comprising a housing, wherein:

the distance sensor, the angle sensor, and the processor are positioned in the housing, and

the display device is secured to the housing so as to be readable from outside the housing.

22. The survey device of claim 21, further comprising a support frame, the housing being secured to the support frame.

23. A method of operating a survey instrument to determine an elevation of a pipe in a sewer, the method comprising the steps of:

determining a line-of-sight distance from the survey instrument to the pipe and generating a first signal in response thereto,

determining an angular position of the survey instrument relative to a vertical reference and generating a second signal in response thereto, and

calculating the elevation of the pipe in response to generation of the first signal and the second signal.

24. The method of claim 23, wherein the line-of-sight determining step comprises operating a distance sensor so as to determine the line-of-sight distance from the survey instrument to the pipe.

25. The method of claim 23, wherein the angular position determining step comprises operating an angle sensor so as to determine the angular position of the survey instrument relative to the vertical reference.

26. The method of claim 23, further comprising the step of displaying the elevation on a display device subsequent to the calculating step.